

IN THE CLAIMS:

Please cancel claims 1-28 without prejudice or disclaimer and add new claims 29 - 51 as follows:

1 - 28. (Cancelled)

29. (New) A device for automated evolutionary assistance to air traffic computer including a software program permitting the receipt of data for equipping an air traffic control system including flight plans of aircraft and Radars and elaborating and displaying them to air traffic controllers, the controllers having a radiotelephony link for communicating with the aircraft, the device comprising:

- means for establishing a data-link with the aircraft;
- means for establishing and updating a computer agenda, which is a list of the aircrafts' conflicts, of potential conflicts on the basis of all the information and computation means of the computer;
- means for automatically collecting, via said data-link, in on-board aircraft computers, complementary data for establishing said computer agenda;
- means for selecting potential conflicts on crossing trajectories which can be solved by modification(s) of aircraft speed, climbing or descending

rates, lateral shift of route, said modification(s) being so minor as to not interfere with current controllers' decision making processes;

- means for automatically transmitting said modification(s) via said data-link to said selected aircraft without controllers' prior agreement, said modifications of flight parameters staying within limits of the fuzziness of the controllers' vision and thereby being "subliminal" to the controllers;

- means for executing said modifications by automating means in said selected aircraft; and

- means for establishing, displaying and updating a controllers' agenda.

30. (New) The device according to claim 29, further including means for elaborating optimal solutions to potential conflict figuring in said computer agenda.

31. (New) The device according to claim 29, further including means for determining in real time among conflicts within said controllers' agenda those which are false conflicts and displaying the false conflicts on a display of a sector in charge of implied aircraft.

32. (New) The device according to claim 29, further including means for updating potential conflicts into said computer agenda even before implied aircraft have entered in a control sector in which the conflict could happen.

33. (New) The device according to claim 29, further including means for selecting in said computer agenda particularly sensitive conflicts that lead to the occurrence of conflict clusters that are difficult to solve.

34. (New) The device according to claim 33, further including means for proposing solution(s) for avoiding such occurrence on a display screen of controllers presently in charge of the aircraft when said conflicts only occur in a following sector.

35. (New) The device according to claim 33, further including means for proposing to controllers, transfer conditions of an aircraft to a following sector.

36. (New) The device according to claim 29, further including means for displaying to controllers' icons in bi-univocal relationship with aircraft pairs on said controllers' agenda, said icons serving as a virtual keyboard for addressing in return specific messages to the computer concerning said aircraft pairs.

37. (New) The device according to claim 36, further including means for displaying the aircraft pairs of said controller agenda, a specific icon that makes displaying the virtual keyboard specifically adapted to the situation when designated by the controllers.

38. (New) The device according to claim 30 further including means for displaying on said controllers' agenda an icon that indicates the controllers' desire to know the solution(s) elaborated by the computer and means for informing said computer of the chosen solution when designated by controllers or assistant controllers.

39. (New) The device according to claim 38, further including means for automatically transferring the chosen solution to concerned aircraft for execution.

40. (New) The device according to claim 29, further including means for displaying on the controllers' display screen, close to the display of each potential conflict, the time left before the actual conflict and/or the separation at the crossing of the trajectories.

41. (New) The device according to claim 29, further including means for displaying on the controllers' display screen moments of occurrence of potential conflicts still to be solved on a time graduated axis.

42. (New) The device according to claim 41, wherein the displaying means of the display of the occurrence moments are such that the controller can add the moment when they estimate to have to check the state of each problem.

43. (New) The device according to claim 29, further including means for elaborating a display making appear each aircraft pair in potential conflict on the form of a point and of its speed vector, the coordinates of said point being respectively the delay between the present moment and the moment when said aircraft pairs will have a minimum longitudinal separation, and in ordinates the separation distance at this moment.

44. (New) The device according claim 43, wherein said device is further arranged for associating a label providing any necessary data concerning the aircraft with the point representing the aircraft pair.

45. (New) The device according to claim 43, wherein said device is further arranged for associating an indicator giving their vertical separation when their horizontal separation will be minimum with the point representing the aircraft pair.

46. (New) The device according to claim 43, wherein a designation by a controller of an aircraft on any display screen makes the aircraft and an aircraft conflicting with it appear on other display screens.

47. (New) The device according to claim 39 further including means for receiving from said aircraft data confirming the proper execution of instructions.

48. (New) The device according to claim 47, further including means for sending a message to two conflicting aircraft for sub-delegating to the conflicting aircraft the responsibility of insuring their safe separation by their own

means according to clearances defined by said device and chosen among a set of possible conflict resolution manoeuvres.

49. (New) The device according to claim 48, further including means for insuring automatic display of the delegated conflict, so that said controllers' agenda provides a permanent monitoring board displaying a list of the delegated conflicts and a list of potential conflicts still to be solved.

50. (New) An automated process for evolutionary assistance to air traffic controllers performed in an air traffic control system comprising a computer programmed for:

- receiving data concerning aircraft flight plans and Radars and elaborating and displaying them to controllers, said controllers having a radiotelephony link for communicating with aircraft complemented with a data-link for communication between ground and aircraft computers;
- elaborating and displaying controller agendas;
- establishing and updating of a computer agenda, which is a list of the aircrafts' conflicts, of problems on the basis of all the data and computing means available to the computer;

- comparing, pair of aircraft by pair of aircraft, said controller agendas and said computer agenda to make appearing forecast disparities between the two said agendas;

- selecting those of the problems retained by the controllers which only result from lack of accuracy of the forecast as made by the controllers;

- selecting problems which can be solved by modification(s) of aircraft speed, climbing or descending rates, lateral shift of route so minor as they do not interfere with current controllers' decision-making processes; and

- transferring said modification(s) via data-link to said aircraft as clearances for being executed by auto-pilot means within said aircraft without controllers' prior authorization as the execution of said clearance stays within limits of the fuzziness of the controllers' vision and therefore is "subliminal" to the controllers; and

- establishing, displaying and updating a controllers' agenda.

51. (New) The process according to claim 50, further including elaboration of optimal solutions to conflicts and exchanges of messages (i) between the computer and controllers and (ii) between the computer and aircraft concerning conflict avoidance.